

Math Makes Sense Page 56-57

13. Write each product as a power, then evaluate.

- a) 5×5
- b) $3 \times 3 \times 3 \times 3$
- c) $10 \times 10 \times 10 \times 10 \times 10$
- d) $-(9 \times 9 \times 9)$
- e) $(-2)(-2)(-2)$
- f) $-(-4)(-4)(-4)$
- g) $(-5)(-5)(-5)(-5)$
- h) $-(5)(5)(5)(5)$
- i) $-(-5)(-5)(-5)(-5)$

14. Predict whether each answer is positive or negative, then evaluate.

- a) 2^3
- b) 10^6
- c) 3^1
- d) -7^3
- e) $(-7)^3$
- f) $(-2)^8$
- g) -2^8
- h) -6^4
- i) $(-6)^4$
- j) $-(-6)^4$
- k) $(-5)^3$
- l) -4^4

16. Evaluate.

- a) 3^{12}
- b) -7^7
- c) 5^{11}
- d) $-(-4)^{10}$
- e) $(-9)^8$
- f) 2^{23}

17. Assessment Focus

- a) Write as repeated multiplication and in standard form.
 - i) 4^3 ii) -4^3 iii) $-(-4^3)$ iv) (-4^3)
- b) Which products in part a are positive? Why? Which products are negative? Why?
- c) Write as repeated multiplication and in standard form.
 - i) 4^2 ii) -4^2 iii) $-(-4^2)$ iv) (-4^2)
- d) Which products in part c are positive? Why? Which products are negative? Why?
- e) Write other sets of powers like those in parts a and c. Explain how you know if each product is positive or negative before you write the power in standard form.

- 18. a) Is the value of -3^5 different from the value of $(-3)^5$ or (-3^5) ? What purpose do the brackets serve?
- b) Is the value of -4^6 different from the value of $(-4)^6$ or (-4^6) ? What purpose do the brackets serve?

20. Write each number as a power with base 2.

Explain your method.

- a) 4
- b) 16
- c) 64
- d) 256
- e) 32
- f) 128

21. a) Write each number as a power in as many ways as possible.

- i) 16
- ii) 81
- iii) 256

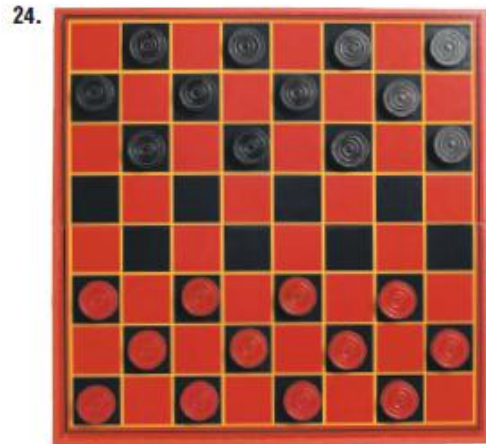
b) Find other numbers that can be written as a power in more than one way. Show your work.

22. a) How are the powers in each pair the same? How are they different?

- i) 2^3 or 3^2
- ii) 2^5 or 5^2
- iii) 3^4 or 4^3
- iv) 5^4 or 4^5

b) In part a, which is the greater power in each pair? Explain how you know.

23. Without evaluating all the powers, write them in order from greatest to least:
 3^5 , 5^2 , 3^4 , 6^3
Explain your strategy.



How many squares of each side length are there on a checkerboard? Write each number as a power.

- | | |
|------------|------------|
| a) 1 unit | b) 2 units |
| c) 3 units | d) 4 units |
| e) 5 units | f) 6 units |
| g) 7 units | h) 8 units |

What patterns do you see in the answers?

25. Explain how to tell if a number is a square number, or a cube number, or neither.
Give examples.